

**BY ORDER OF THE COMMANDER
39TH AIR BASE WING (USAFE)**

INCIRLIK AIR BASE INSTRUCTION 48-151

3 MAY 2013



Aerospace Medicine

***PREVENTION OF THERMAL STRESS
INJURIES***

COMPLIANCE WITH THIS PUBLICATION IS MANDATORY

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OPR: 39 MDOS/SGOZB

Certified by: 39 MDG
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This instruction implements Air Force Policy Directive 48-1, *Aerospace Medical Program*, and establishes policies and procedures designed to protect Incirlik Air Base (AB) personnel from adverse health effects caused by thermal stress. This instruction applies to all personnel assigned, attached to, or associated with the 39th Air Base Wing (ABW). Refer recommended changes and questions about this publication to the Office of Primary Responsibility (OPR) using the AF Form 847, *Recommendation for Change of Publication*. Ensure that all records created as a result of processes prescribed in this publication are maintained IAW Air Force Manual (AFMAN) 33-363, Management of Records, and disposed of IAW Air Force Records Information Management System (AFRIMS) Records Disposition Schedule (RDS).

1. Concept:

1.1. This instruction provides unit commanders and supervisors with information and guidance to operate continuously in severely heated environments. This instruction is to be applied in peacetime, contingency, and exercise operations.

1.2. This instruction provides guidance beyond what is supplied in AFMAN 10-2503, *Operations in a Chemical, Biological, Radiological, Nuclear, and High Yield Explosive (CBRNE) Environment* and AFPAM 48-151, *Thermal Injury*.

2. Responsibilities:

2.1. Bioenvironmental Engineering (BE) (39 MDOS/SGOZB) will:

- 2.1.1. Ensure Wet Bulb Globe Temperature (WBGT) monitoring is completed when temperatures are above 85 degrees Fahrenheit for five consecutive days and discontinued when temperatures are below 85 degrees Fahrenheit for five consecutive days (typically between May and October). WBGT will be monitored every two hours beginning at 0830 and ending at 1630 of each day (including weekends and/or holidays).
- 2.1.2. Establish recommended thermal stress work/rest cycles for personnel exposed to extreme temperatures.
- 2.1.3. Conduct health risk assessments in workplaces at the request of the commander or supervisor.
- 2.1.4. Provide risk assessments upon request for tasks not specified in this instruction.
- 2.1.5. If requested, BE will provide the Fitness Assessment Cell (FAC) with a WBGT monitor and train personnel on use and maintenance for recording readings during early morning PT testing sessions.
- 2.1.6. Notify command post when WBGT readings reach category two or higher and every time the heat category changes during the monitoring increments.

2.2. Command Post will:

- 2.2.1. Notify mission critical personnel of all heat category changes upon receipt.
- 2.2.2. Notify ALL wing personnel (via mass email notification) when the heat category reaches category two or greater. The last notification will occur at 1630 every day the notification should contain the following verbage:
“Heat category ____ (2, 3, 4, or 5) is in effect. Maintain category ____ (2, 3, 4, or 5) recommendations until dusk.”
- 2.2.3. Notification processes are subject to change when new processes are introduced but command post will ensure the widest dissemination possible to ensure safety of all wing personnel.

2.3. Supervisors will:

- 2.3.1. Follow heat stress control measures and monitor personnel for signs and symptoms indicating heat stress (paragraph 3).
- 2.3.2. Ensure proper training of workers on heat stress symptoms and prevention. Training must be documented on AF Form 55, *Employee Safety and Health Record*.
- 2.3.3. Ensure personnel have proper rest facilities for rest periods such as air conditioning.

3. Heat Stress

3.1. Controlling Heat Stress

- 3.1.1. Follow work/rest cycles and hydration chart as specified in Attachment 2 of this instruction.

3.1.2. Provide drinking water in a place convenient to work area where heat category is two or higher. If heat is artificially generated (i.e. welding, firefighting, etc.) drinking water should be made readily available to workers. Water should be kept cool but not cold. See Attachment 2 for recommended water intake.

3.1.3. Light, loose clothing made of breathable material should be worn during outdoor activities in hot conditions. If special clothing is required for performing a particular task and it impedes sweat evaporation or has high insulation value (firefighters, chemical warfare) the workers' heat tolerance will be reduced.

3.2. Acclimatization and Fitness

3.2.1. Acclimatization to heat involves both physiological and psychological adjustments, which occur in an individual during the first two weeks of exposure to a hot environment. Workers arriving from colder climates during hot weather should be given light duty for two weeks to allow time for acclimatization.

3.2.2. Workers who are not fit or have a medical condition may be more susceptible to the effects of extreme heat. If a member or supervisor has any questions regarding fitness for duty in extreme heat they should contact a medical provider to ensure member's safety.

3.3. Signs and Symptoms of Heat related Conditions:

3.3.1. If any of the signs and symptoms listed below persist after removing member to cool area and providing water, seek immediate medical attention.

3.3.1.1. Heat Cramps. Signs and symptoms include painful cramps of voluntary muscles following exposures to heat. Heat cramps result primarily from excessive sweating which results in the loss of essential salts and water in the body. Body temperature is normal unless heat cramps are accompanied by heat exhaustion.

3.3.1.2. Heat Exhaustion. Signs and symptoms of heat exhaustion include cool, clammy, moist skin, and profuse sweating. Breathing will usually become shallow and quiet, and the pulse rate will be weak. The pupils will remain normal.

3.3.1.3. Heat Stroke. Signs and symptoms include an extreme rise in body temperature, shivering, and a lack of sweating. If continued for a period of time, it can result in kidney failure, pulmonary edema, and liver damage. A heat stroke is a severe medical emergency.

4. 39 ABW Exercises

4.1. The 39 ABW Commander or Vice Commander can cancel Mission-Oriented Protective Posture (MOPP) exercises or suspend work based on heat stress conditions. The 39th Medical Group (MDG) Commander and the BE will be available for consultation in that decision-making process.

5. Guidelines for Personnel Wearing the Ground Crew Chemical Defense Ensemble

5.1. Personnel performing ground crew operations and training while wearing the charcoal-impregnated overgarment and associated protective equipment of the chemical defense ensemble are at increased risk of injury from heat stress. Maximum work times tolerated by personnel while they are wearing the protective ensemble are affected by factors such as

individual's physical condition, state of thermal acclimatization, and degree of hydration; the workload associated with a given task and environmental factors, including air velocity, radiant heat (sunlight), air temperature, and humidity. The WBGT criteria incorporate many of these variables.

5.2. Make the following adjustments to the WBGT index based on MOPP conditions and Individual Protective Equipment (IPE) worn:

5.2.1. IPE gear (flak vest and Kevlar helmet) -- add 5 degrees to the WBGT.

5.2.2. MOPP 2 only -- add 5 degrees to the WBGT.

5.2.3. MOPP 2 and IPE gear worn -- add 10 degrees to the WBGT.

5.2.4. MOPP 3 or 4 only -- add 10 degrees to the WBGT.

5.2.5. MOPP 3 or 4 and IPE gear worn -- add 15 degrees to the WBGT.

5.3. Make the following adjustments to the WBGT index based on MOPP variations (figures are based on estimates and professional judgment):

5.3.1. MOPP 2 ventilated -- subtract 2 degrees from adjusted WBGT.

5.3.2. No Airmen Battle Uniform (ABU) option -- subtract 3 degrees from the adjusted WBGT.

5.3.3. No ABU and ventilated -- subtract 4 degrees from adjusted WBGT.

CHRISTOPHER E. CRAIGE, Colonel, USAF
Commander

Attachment 1**GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION*****References***

AFMAN 10-2503, *Operations in a Chemical, Biological, Radiological, Nuclear, and High Yield Explosive (CBRNE) Environment*, 06 July 2011

AFPAM 48-151, *Thermal Injury*, 10 July 2008

Prescribed Forms

No forms prescribed.

Adopted Forms

AF Form 847, *Recommendation for Change of Publication*

Abbreviations and Acronyms

ABU—Airmen Battle Uniform

AFMAN—Air Force Manual

AFPAM—Air Force Pamphlet

BE—Bioenvironmental Engineering

FAC—Fitness Assessment Cell

IPE—Individual Protective Equipment

MDG—Medical Group

MOPP—Mission-Oriented Protective Posture

QA—Quality Assurance

QC—Quality Control

WBGT—Wet Bulb Globe Temperature

Terms

Wet Bulb Globe Temperature (WBGT)— Index takes into account the dry bulb (air temperature), wet bulb (relative humidity and evaporative effectiveness of the air wind), and black globe (heating by direct rays of sun) temperatures. Characterizes thermal stress personnel are exposed to in operational environment

Attachment 2

WORK/REST CYCLE AND HYDRATION CHART

Table A2.1. Training Guidelines for Average Acclimatized Airmen Wearing ABU, Hot Weather.

Heat Category	WBGT (F)	Easy Work		Moderate Work		Hard Work	
		Work Rest Cycle	Water Intake Qt/hr	Work Rest Cycle	Water Intake Qt/hr	Work Rest Cycle	Water Intake Qt/hr
1	78-81.9	No Limit	0.5	No Limit	0.75	40/20 min	0.75
2	82-84.9	No Limit	0.5	50/10 min	0.75	30/30 min	1.0
3	85-87.9	No Limit	0.75	40/20 min	0.75	30/30 min	1.0
4	88-89.9	No Limit	0.75	30/30 min	0.75	20/40 min	1.0
5	>90	50/10 min	1.0	24/40 min	1.0	10/50 min	1.0